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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ORTIZ RODRIGUEZ, CARLOS R

ART UNIT

PAPER NUMBER

2125

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/964,939	Applicant(s) DISCENZO ET AL.	
	Examiner Carlos Ortiz-Rodriguez	Art Unit 2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 11/12/04, have been fully considered and the final rejection of 04/05/04 has been withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 23, 34-35 and 37-42 rejected under 35 U.S.C. 102(e) as being anticipated by Hays et al. U.S Patent No. 6,260,004.

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Regarding claim 1, 23 and 34-35 Hays et al. discloses a control system for controlling a process having a pump with an associated motor, the control system comprising: a motor drive providing electrical power to the motor in a controlled fashion according to a control signal (C6 L54-57, C11 L49-51, C14 L55-67 and C19 34-39); and a controller providing the control signal to the motor drive according to a desired operating point within an allowable range of operation about a process setpoint (C14 L55-67); wherein the controller selects the desired operating point according to performance characteristics associated with a plurality of components in the process (C19 L20-33 and C28 L50-54).

Regarding claims 37 and 40 Hays et al. discloses a pump control system for automatically operating a pump driven by a motor in a controlled fashion, comprising: a motor drive providing electric power to operate the motor in a controlled fashion according to a motor control signal (C6 L54-57, C11 L49-51, C14 L55-67 and C19 34-39); and a controller comprising a diagnostic component operatively connected to diagnose an operating condition associated with the pump; wherein the controller provides the control signal to the motor drive according to a setpoint and a diagnostic signal from the diagnostic component according to the diagnosed operating condition in the pump (C10 L33-43, C14 L55-67, and C16 L50-67).

Regarding claims 38 and 41 Hays et al. discloses the pump control system wherein the diagnostic component performs signature analysis of at least one sensor signal from a sensor associated with the pump in order to diagnose the operating condition associated with the pump (abstract L6-11).

Regarding claims 39 and 42 Hays et al. discloses the control system wherein the at least one sensor signal is related to one of flow, pressure, current, noise, vibration, and temperature associated with the pump(C12 L66).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 3, 4, 6, 10, 11, 13, 17-22, 24, 25, 27, 30, 31, 33 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hays et al. U.S Patent No. 6,260,004 in view of Irvin U.S. Patent No. 5,742,500.

Regarding claim 2 and 24 Hays et al. disclose all the limitations of base claims.

But Hays et al. fails to clearly specify wherein the system comprises a motorized pump system having an electric motor operatively coupled with a pump, and a motor drive providing electrical power to the motor, and wherein the performance characteristics associated with a plurality of components in the system comprises efficiencies of at least two of the motor, the pump, and the motor drive.

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However Hays et al. in combination with Irvin discloses the method, wherein the system comprises a motorized pump system having an electric motor operatively coupled with a pump, and a motor drive providing electrical power to the motor, and wherein the performance characteristics associated with a plurality of components in the system comprises efficiencies of at least two of the motor, the pump, and the motor drive(see Irvin col 1 lines 24-33).

Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the above invention suggested by Hays et al. and combining it with the invention disclosed by Irvin. The results of this combination would lead to system and method for dynamic multi-objective optimization of pumping system operation and diagnostics.

One of ordinary skill in the art would have been motivated to do this modification because it is known in this art to control system with more than one motor.

Regarding claims 3 and 6, 13 and 27 Hays et al. in combination with Irvin further disclose obtaining the system setpoint and the allowable range of operation from a user(see Irvin col 4 lines 23-31).

Regarding claims 4, 11 and 25 Hays et al. in combination with Irvin further disclose the method, wherein selecting the desired operating point comprises: correlating at least two of motor efficiency information, pump efficiency information, and motor drive efficiency information in order to derive correlated system efficiency information; and selecting the desired operating point as the optimum efficiency point within the allowable range of operation according to the correlated system efficiency information(see Irvin col 10 lines 31-34).

Regarding claims 10, 17 and 30 Hays et al. in combination with Irvin further disclose obtaining at least a portion of one of the efficiency information, the allowable range, and the system setpoint from prior operation of the system(see Irvin col 2 lines 15-17).

Regarding claim 18-21 and 33 Hays et al. in combination with Irvin further disclose a motorized pump system for pumping fluid, having an electric motor operatively coupled with a pump, and a motor drive providing electrical power to the motor (see Irvin col 1 line 49 and col 1 lines 23-25 and fig 1), wherein the component performance information comprises efficiency information related to at least two of the motor, the pump, and the motor drive(see Irvin col 2 lines 44-47), and wherein the correlated system performance information comprises cost information related to the system operational cost per unit of fluid pumped(see Irvin col 13 lines 2-3).

Regarding claim 22 Hays et al. in combination with Irvin further disclose selecting the desired operating point comprises measuring at least one process variable from a sensor associated with the system(see Irvin col 12 line 4).

Regarding claim 31, Hays et al. in combination with Irvin further disclose the control system wherein the controller is adapted to correlate component performance information associated with at least two components in the process in order to derive correlated process performance information, and to select the desired operating point as the optimum performance

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point within the allowable range of operation according to the correlated process performance information(see Irvin col 10 lines 31-34).

Regarding claim 36, Hays et al. in combination with Irvin further disclose the control system wherein the process comprises a motorized pump system having an electric motor operatively coupled with a pump, and a motor drive providing electrical power to the motor(see Irvin col 1 line 49 and col 1 lines 23-25 and fig 1), and wherein the means for selecting a desired operating point comprises: means for correlating at least two of motor efficiency information. pump efficiency information. and motor drive efficiency information in order to derive correlated process efficiency information; and means for selecting the desired operating point as the optimum efficiency point within the allowable range of operation according to the correlated process efficiency information(see Irvin col 10 lines 31-34).

6. Claims 5, 7-9, 12, 14-16, 26, 28, 29, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hays et al. U.S Patent No. 6,260,004 in view of Irvin U.S. Patent No. 5,742,500 and further in view of Crane U.S. Patent No. 4,584,654.

Regarding claim 5, 12, 26 and 32 Hays et al. in combination with Irvin disclose all the limitations of base claim 4.

But Hays et al. in combination with Irvin fails to clearly specify controlling the system according to the desired operating point comprises providing a motor speed signal to the motor drive according to the desired operating point.

However Hays et al. in combination with Irvin and further in view of Crane discloses controlling the system according to the desired operating point comprises providing a motor speed signal to the motor drive according to the desired operating point(see Crane col 3 lines 13-15).

Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the above invention suggested by Hays et al. and Irvin and combining it with the invention disclosed by Crane.

One of ordinary skill in the art would have been motivated to do this modification because in order to obtain optimum operating characteristics and efficiencies, as suggested by Crane.

Regarding claim 7 and 14 Hays et al. in combination with Irvin and Crane further disclose obtaining at least one of the efficiency information, the allowable range and the system setpoint from a host computer(see Crane col 3 lines 38-43).

Regarding claims 8, 15, and 28 Hays et al. in combination with Irvin and Crane further disclose at least one of the efficiency information the allowable range, and the system setpoint is obtained via a network(see Crane col 4 lines 65-67).

Regarding claims 9, 16 and 29 Hays et al. in combination with Irvin and Crane further disclose at least one of the efficiency information, the allowable range, and the system setpoint is obtained via wireless communications(see Crane col 4 lines 61-65).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Ortiz-Rodriguez whose telephone number is (571) 272-3747. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (571) 272-3749. The central official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P Picard can be reached on (703)308-0538. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Carlos Ortiz-Rodriguez
Patent Examiner
Art Unit 2125

cror

February 4, 2005

A handwritten signature in black ink, appearing to read "L. Picard", is written over the typed name and title of LEO PICARD.

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100